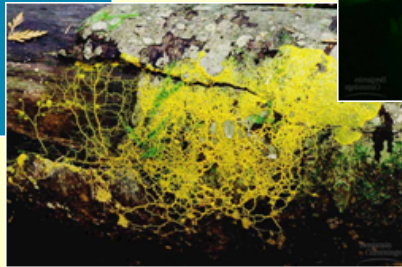
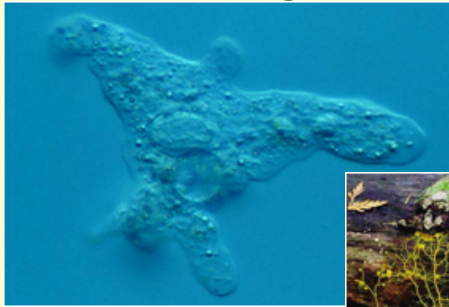


## Kingdom Protista- Chapter 20



## What is a Protist?

Protists are eukaryotes that are not members of the Plant, Animal, or Fungi kingdoms



# Basic Characteristics of the Kingdom Protista

1. **Eukaryotic**- has a nucleus
2. **Unicellular** -(except some algae are multicellular)
3. Some have cell walls
4. **Autotrophic or heterotrophic**

## Classification of Protists

Protists are separated into three groups according to **how they get nutrients**



# Plant-like Protists

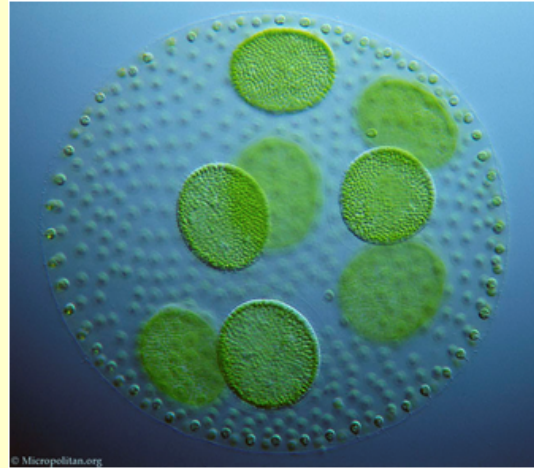
- All are **autotrophic**-meaning they can make their own food

- ***Examples:***

Euglena

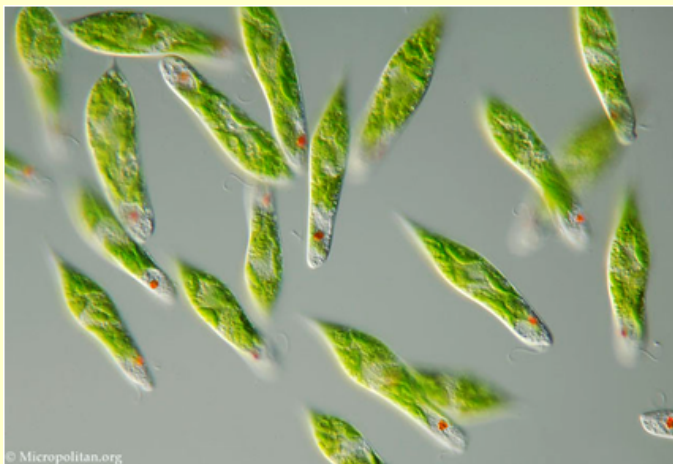
Dinoflagellates

Algae



Volvox

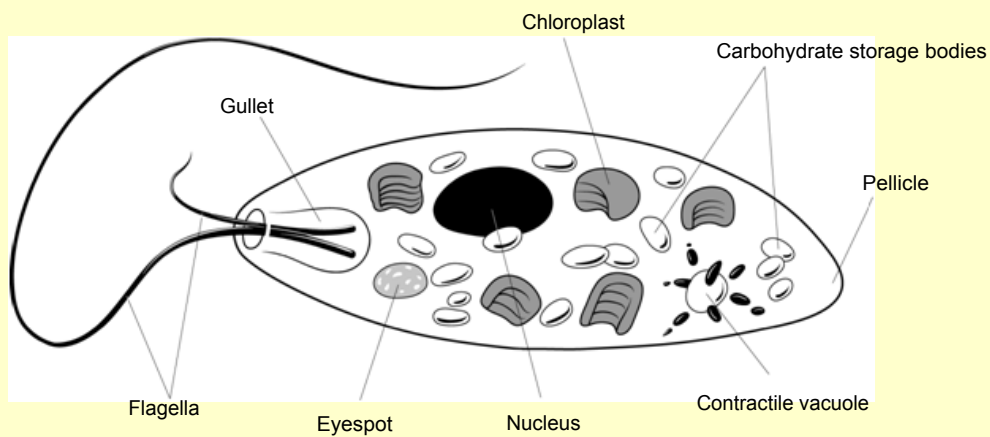
## ***Euglena***



Euglena have **chloroplasts**, move using a **flagella**

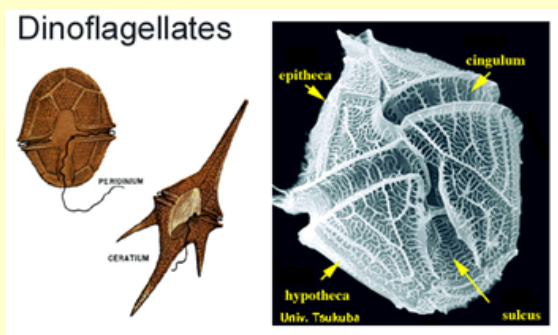
Unique because they are both heterotrophic and autotrophic

# Euglena



Ingest food through the gullet

# Dinoflagellates



- Two flagella that cause it to spin like a top
- Warm surface waters cause “blooms”
- **Red tide** can paralyze humans

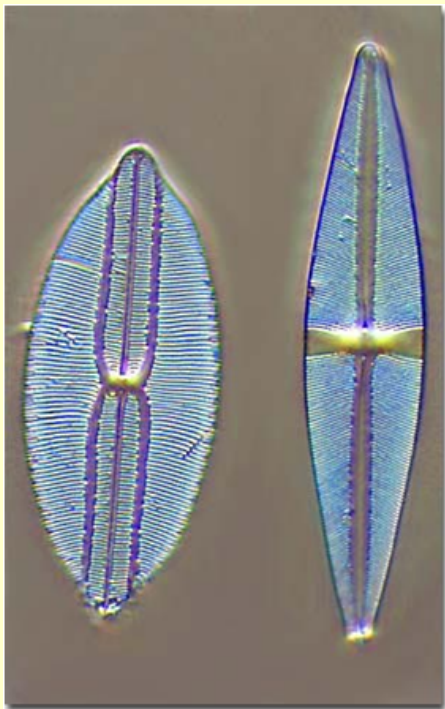


**Red Tide**- a population boom of **dinoflagellates** that can span hundreds of miles  
- if breathed can cause respiratory failure -if you ate contaminated shell-fish it could lead to death-  
can lead to massive fish kills



## Diatoms

- Produce cell walls rich in silica (Si – the main ingredient in glass)

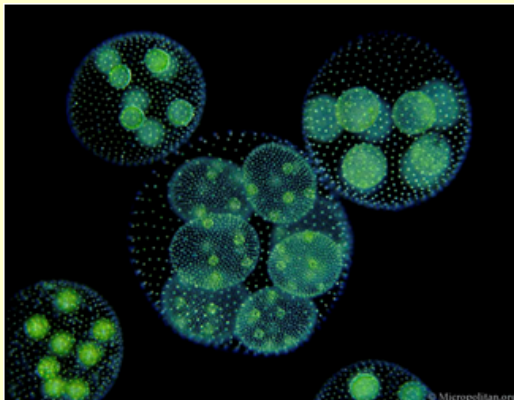


# Algae

- Red, Green, and Brown forms
- Extracts like **pectin & agar** are used to thicken jelly and yogurt.
- The extract **carrageenan** is used to thicken ice cream, toothpaste, inks, paints, and cosmetics.
- **Kelp**- provides habitat – also used for human food

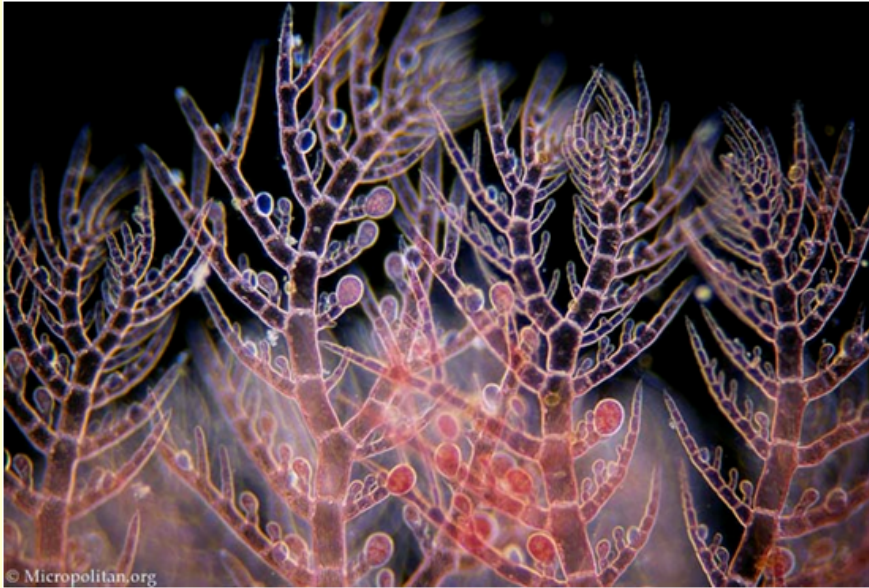
## GREEN ALGAE

*Volvox* (left), *Spirogyra* (right)



Colonies of Individual Cells

## Red Algae – *Antithamnion plumula*

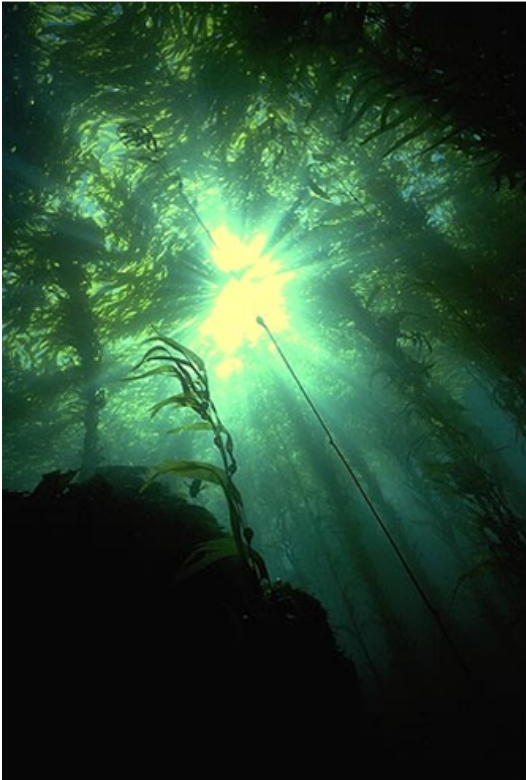


Red algae- Porphyra is used to wrap sushi





## Brown Algae (largest algae) Kelp forest



## Animal-like Protists

- Are all heterotrophs
- Classified by how they move.
- **Examples:**

Amoeba  
Paramecium  
Plasmodium

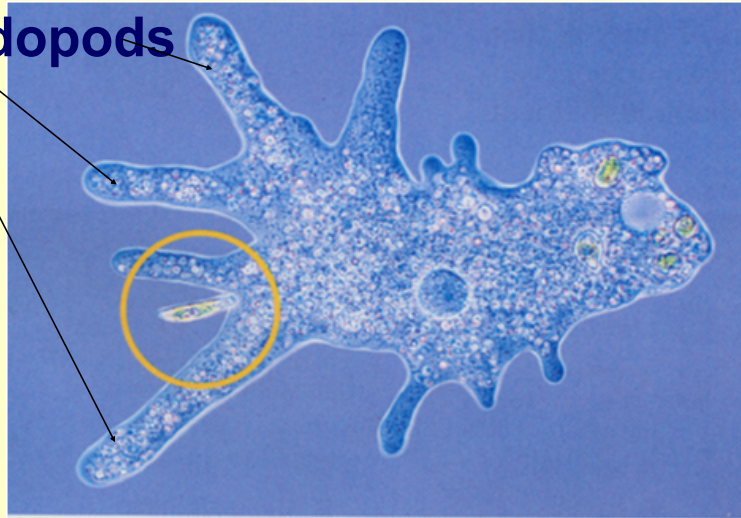


*Arcella gibbosa, a shelled amoeba*



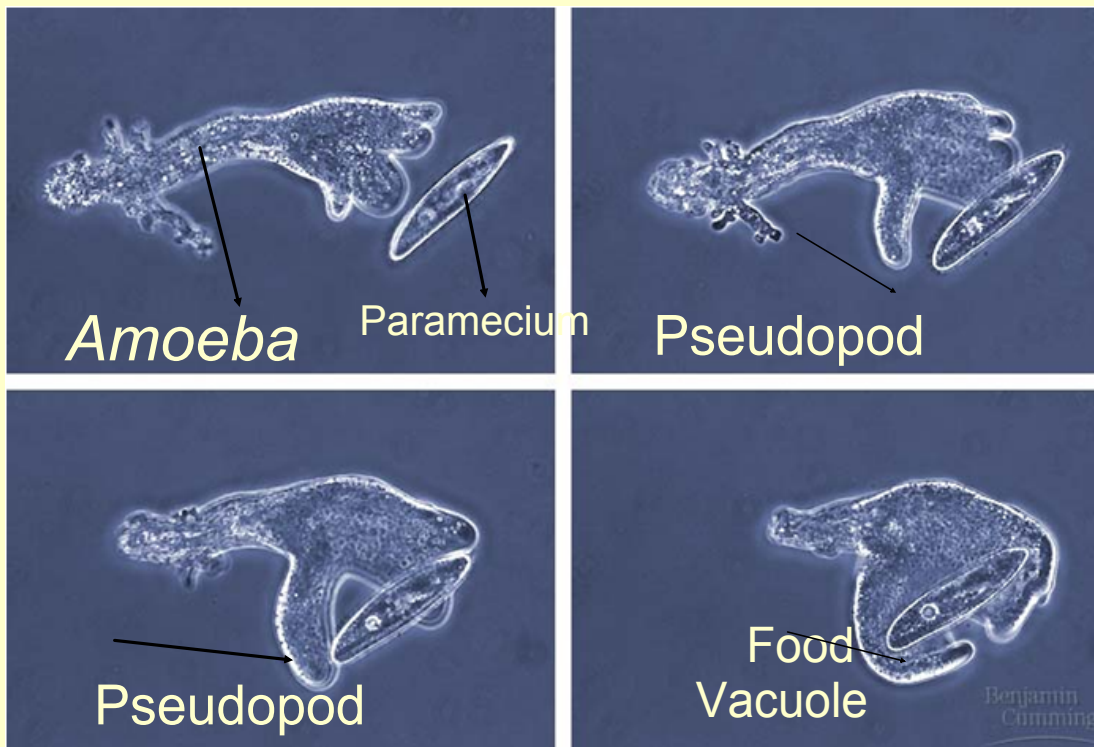
# Amoeba

Pseudopods



Moves using pseudopods- “false feet”  
cytoplasmic projections

They also use pseudopods for feeding



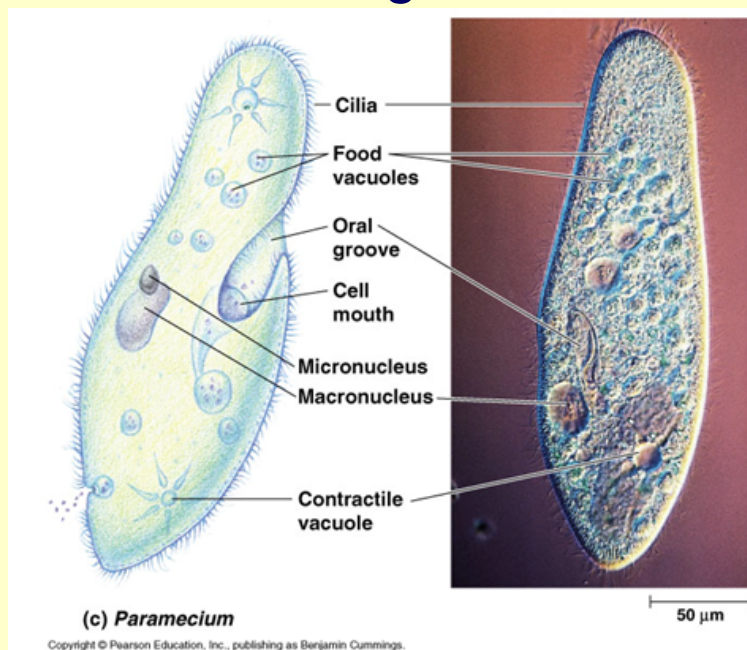
# Paramecium

Move using **Cilia** - hair-like projections

Have **contractile**  
to **vacuoles**  
pump out  
freshwater  
diffusing in  
due to  
osmosis.



*Paramecium- ingest food through oral groove*



# ***Fungi-like Protists***

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- All are **external heterotrophs**.
- Decomposers- absorb nutrients from dead or decaying matter
- ***Examples:***
- Water Molds
- Slime Molds



*Phytophthora*

## ***Fungi-like Protists- examples***

- **Water molds**- thrive on dead or decaying organic matter in water and are plant parasites on land.

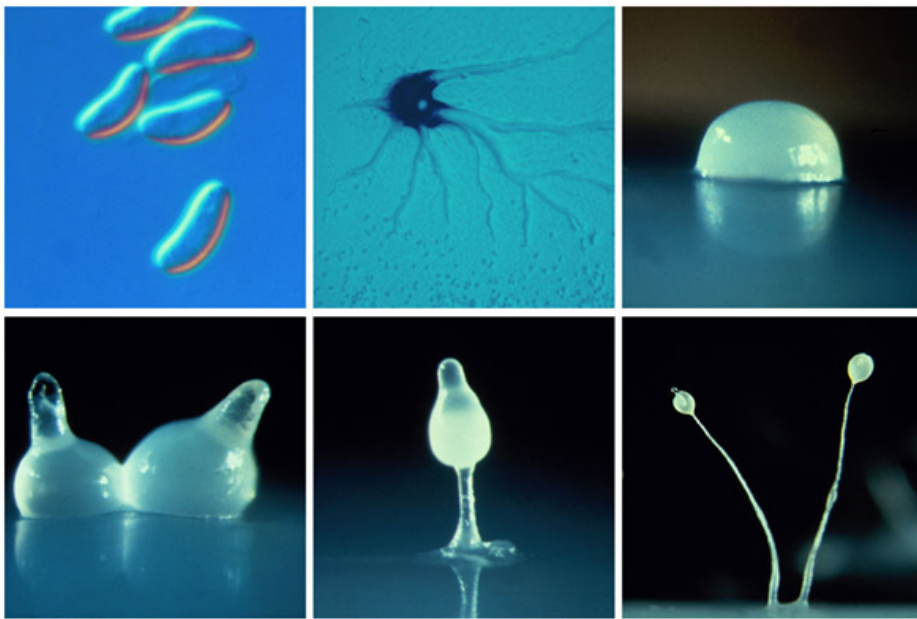


# ***Fungi-like Protists- examples***

- **Slime molds** are fungus like protists that play key roles in recycling organic material



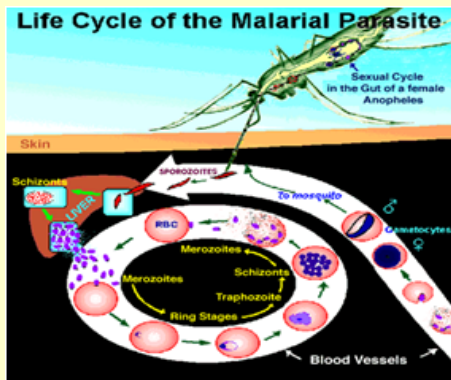
## **Slime molds upclose**





# DISEASES CAUSED BY PROTISTS

- MALARIA – *Plasmodium*
- Causes severe chills, fever, sweating, confusion, and great thirst.
- Spread from person to person by the anopheles mosquito.



## Amoebic dysentery

- *Entamoeba histolytica*
- Amoebas feed on intestinal lining, causing bloody diarrhea.
- Contaminated food or water.



# Brain-eating amoeba

- *Naegleria fowleri* – causes infection of the brain and is 98% fatal.
- found in natural freshwater bodies of water such as lakes, and ponds that have especially warm temperatures, and swimming pools with insufficient chlorination

